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ABSTRACT

Computers have a legitimate place in early childhood classrooms, provided that attention is given to appropriate software, location, and access. Software should be meaningful, be relevant to the early childhood curriculum, and meet children's needs. Word processing is one of the most appropriate ways to introduce computers into early childhood programs. Young children want to write, and the variety and number of language-related experiences they have will directly influence their command of oral and written language. The use of computers increases the number of children's experiential activities and the number of opportunities for risk-taking in emergent literacy activities. Computers placed in a freely available classroom writing center provide preschoolers with optimal access. The computer should be invitingly placed in a good, highly visible location. Research shows that computers strengthen specific skills, foster creativity and problem solving, and enhance the writing process. Children will view the computer as just another playground to explore and manipulate. They will not relinquish play in favor of sole dedication to computer exploration and will not fear the computer as some adults do. (RH)

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Is There A Legitimate Role For Computers In Early Childhood Programs?

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Educators have come a long way during the past decade regarding computer use. Computers are being found in an array of school locations and at most every grade level. In addition, computers are now positively enhancing the curriculum, rather than merely serving as an additional activity or special area. However, in spite of the rapid growth of computers in schools there remains a controversy over the use of computers by young children in early childhood programs. Many teachers of young children feel that the introduction of technology to the lower grades, kindergarten, and PK will hamper the developmental appropriateness of their curriculum since computers are more abstract and only two dimensional. However, this need not be the case. By selecting quality software and allowing young children to have choices in their computer activities, including when and how much time they spend, educators can ensure that the activities and curriculum will remain developmentally appropriate.

One of the most appropriate ways to introduce computers into early childhood programs is with word processing (Guddemi, 1987). Young children are enthusiastic writers; the computer simply offers them another tool for fostering their emerging literacy. Their sequence of approach to writing is very like that with paper and pencil (Guddemi, 1990), however with the keyboard the frustrations of forming letters is diminished (Guddemi, 1987). Children still learn about the alphabetic principle and the functions of writing. Computer usage frees them from the taxing demands of letter formation. Children can also direct more attention to the spelling of a word and because the letters look more like those in their environment, spelling is more

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readable and more easily checked. Letters and words can be readily learned, changed, and/or revised until they look like the child wants them to (Moxley, 1990). Computers can be used for print exploration and letter/word recognition as well as for more specific tasks such as journal writing.

In general, writing is a form of self-expression which reveals interests, ideas, concerns, and understandings. Early childhood educators are intrigued by the wonder of a child's initial experimentation and acquisition of written language. Young children want to write and the variety and number of language-related experiences they have will directly influence their command of oral and written language. Computers add another means to meet this need by increasing children's experiential activities and opportunities for risk taking with emergent literacy activities.

The physical access to computers contribute to their appropriateness. The location of computers varies from school to school. Children who are into their kindergarten year, 1st, or 2nd grade, and above are usually sent to a computer lab on a regular basis. However, kindergartners and most younger children would fair better when the computer is placed in a writing center and is available as a free-choice activity within the regular classroom. The computer then becomes selected with the same frequency as other centers. The young child will not relinquish play in favor of sole dedication to computer exploration nor will children fear the computer as do some adults. Children will view the computer as just another "playground" to explore and manipulate (and even get BORED with!) (Huber, 1985).

In addition, the computer should be accessible to children; i.e., good location, high visibility, and inviting placement. The table must be of appropriate position and height, and chair must be comfortable and of a good height. Enough time needs to be taken to introduce the children to computer

programs and techniques before allowing them to use them on their own. Also, procedures, guidelines and/or expectations for computer use should be established.

There is also research available to guide selection of quality computer programs for young children which are developmentally appropriate (Wright, Shade, Thouvenelle, and Davidson, 1990). Software must be selected that is meaningful, meets the needs of children, and can be integrated into the early childhood curriculum. In the lower grades computer use is better directed at basic input and key location, saving formal keyboarding programs for later grades.

Research in the form of parent and teacher questionnaires indicate a positiveness to computer usage for young children. In one study, it was found that 93% percent of preschoolers knew what a computer was and 38% were aware of them in their homes. In addition, 91% of parents polled thought computers were appropriate for 3-5 year-old classrooms, but only 65% felt that working on computers was important for individual preschoolers. 80% of teachers and 82% of the preservice teachers polled agreed or strongly agreed that computer use was appropriate for preschoolers. 100% of teachers and 71% of preservice teachers stated that they thought computer use for this age should be child-directed. 86% of preschoolers and 30% of parents favored child-directed activities (Humphries, 1989/90).

Critics to the use of computers with young children remain, however. One complaint is that computers are too much like TV. The computer however has a different effect on children than other technologies and the media because it requires active rather than passive participation, causes the learner to think in new and different ways, provides an immediacy of response, provides opportunities for choices, and allows the child to work at his own speed and level (Woodill, 1989).

Another concern is that computers are inappropriate for young children because the child is required to work with symbols while he is still in the preoperational stage. These critics believe computer use is best postponed until the stage of concrete operations, around age seven (Humphries, 1989/90 and Woodill, 1989). Others state that computers are unnecessary and can actually deprive children of learning in other areas (Woodill, 1989). There are also critics who oppose the game-like nature of many programs and the values of violence, competition, and aggression which the games often portray. Perhaps the most universal criticism comes from the quality of software and its behaviorist model for use which results in trivial learning (Woodill, 1989).

In support of computer use with kindergartens and preschoolers there is research to show that computers strengthen specific skills, foster creativity and problem solving, and enhance the writing process. One study of 115 children in Head Start used a control group which had no computer-managed instruction and an experimental group which received individual exercises on the computer which involved visual tracking, visual sequencing, and two different visual tracking exercises. Although this study was greatly limited by duration and degree of computer time per student, the investigator analyzed the pre/post test results on Boehm and concluded that the computer-managed exercises had resulted in student gains (Fitch and Sims, 1990).

Another research study involved 42 "at risk" public school students from kindergarten and first grade who were administered standardized pre/post tests to determine if those who had been using the **IBM Writing to Read** program would make greater gains in scores than those who had not. Students with missing or incomplete test scores were excluded, leaving only 36 valid cases for analysis. The experimental group which had use of the computer program showed

increased scores, which ranged from two to ten points, in 11 of the 16 cases. The teachers of these children felt that the program had been very helpful (Fite, 1991).

A study on literacy development (Guddemi, 1989) with 4 and 5 year olds examined the similarities and differences between two different writing mediums; traditional paper/pencil activities and word processing. In addition the impact of literacy based play training on each medium was examined. The following trends were noted. In general children seemed to prefer computer activities, were more aware of the alphabetic principle at the computer, and were more willing to take risks at their own writing at the computer. In addition, the children who received literacy based play training were more readily able to engage in story writing activities. These children often repeated the themes from the books or the style of the book (fantasy, fairy tale, predictable) in their stories.

In this same study four patterns or stages of writing appeared at the computer. 1. Lack of risk taking or no experimentation at writings. 2. Typing randomly but showing an awareness of the connection between speaking and typing. 3. Using a single letter to represent entire words. 4. Using invented spellings and multiple letters to represent whole words (Guddemi, 1989).

In conclusion, there are many factors to consider when determining the developmental appropriateness of computers with young children. This discussion has attempted to substantiate that when computers are used in emerging literacy programs with concern given to appropriate software, location, and freedom of choice, then computers have a legitimate place in early childhood classrooms.

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